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SOCIETIES AND ACADEMIES

BOTANICAL SOCIETY OF WASHINGTON

THE ninety-third regular meeting of the Botanical Society of Washington was held in the Assembly Hall of the Cosmos Club at 8 P.M., Tuesday, January 6, 1914, with 42 members and 5 guests present.

Application for membership of Messrs. H. Pitier, Arno Viehoever and Raymond B. Wilcox were read. Messrs. Charles Thom, Charles S. Ridgway, George D. Clark, Clarence W. Carpenter, William A. Dayton, Orlo A. Pratt and Nathan R. Smith were elected to membership.

Mr. F. L. Lewton called attention to the discovery of the records of the Washington Botanical Club, the predecessor of this society from 1898-1902. He stated that these records were missing when the history of the society was written up a few years ago, and also gave a brief review of the club.

The scientific program was as follows:

The James River Hybrid Walnut: PETER BISSET.
(With lantern.)

Lantern slides were shown of a walnut tree on the Rowe Farm, on the James River, opposite Lower Brandon, Va. The tree is 100 ft. high, with a spread of 123 ft., although until a recent storm the spread was 134 ft. At 4 ft. from the ground the tree is 31 ft. 3 in. in circumference, and at 6 ft. from the ground is over 25 ft. in circumference. At 12 ft. from the ground it divides into four large branches, three of which are larger than any tree in the neighborhood. No one has any definite knowledge of the age of the tree, but as the old farmhouse was built about 200 years ago it is supposed that the seed was planted at that time. Its growth was probably rapid, judged from seedlings which attained a height of 5 ft. 10 in. in one season, as compared with 3 ft. in seedlings of *Juglans nigra* which grew beside them. A seedling planted nearby about 1860 is now 2½ ft. in diameter and of the height of the parent tree. The characters of the leaves and nuts are such as to suggest a possible hybrid origin. The pubescence of the branches and leaves agrees with *Juglans cinerea* and the fruit and other leaf characters suggest *Juglans regia* instead of *J. nigra*. The nuts are of low vitality and very thick shell.

Smelter Injury in Southeastern Tennessee: DR. G. G. HEDGECOCK. (With lantern.)

To be published in the *Journal of the Washington Academy*.

Some Chinese Horticultural Brassica Species: DR. D. N. SHOEMAKER. (With lantern.)

Horticultural forms of Chinese Brassicas in the United States at present are: Three well marked varieties of mustard, *Brassica juncea*. These are well established in the American seed trade. Four types of non-pungent brassicas, of uncertain specific relations: (1) The heading forms, Chinese name *Pai Taa*. These make long heads resting on the surface of the ground, and present many varieties. (2) A form with long broad petioles, and long light green leaf blades, the veins of which are quite prominent. (3) A form with very broad short flat petioles, and dark green leaf blades. These usually send up swollen seeding stems. (4) A very loose-leafed round petioled form, used by the Chinese as a summer vegetable.

THE ninety-fifth regular meeting of the society was held at the Play House on Tuesday evening, March 3, 1914, at eight o'clock, at which the retiring president, Dr. W. W. Stockberger, delivered an address on the social obligations of the botanist (to be published in SCIENCE).

The ninety-sixth regular meeting of the society was held at the Cosmos Club, Tuesday, April 7, 1914, at eight o'clock.

Messrs. Robert B. Whitney and H. S. Westover were unanimously elected to membership in this society.

The scientific program was as follows:

Professor A. S. Hitchcock reviewed (a) a paper by Trabut in which he states that the oats commonly cultivated in temperate regions descended from *Avena fatua*, the Algerian oat from *A. sterilis* and *A. strigosa* from *A. barbata*; (b) a paper by Schulz on the origin of wheat in which he states that *Triticum monococcum* descended from *T. ægilopoides*, *T. dicoccum* from *T. dicoccoides*, and *T. spelta* from an as yet undiscovered wild form; that the naked wheats are derived from the spelt wheats, *T. turgidum*, *T. durum* and *T. polonicum* from *T. dicoccum*, and *T. vulgare* and *T. compactum* from *T. spelta*.

Dr. H. L. Shantz reviewed a paper by Sir Francis Darwin.¹ A method by which the influence of stomatal adjustment on the rate of transpiration is eliminated. The stomata of the lower surface of the leaf are locked with cocoa butter or petrolatum and incisions made through the upper epider-

¹ *Proceedings of the Royal Society*, Series B, Vol. 87, February, 1914.

mis, thus connecting the intercellular spaces with the outer air. By this method transpiration was found to decrease proportionally as relative humidity increased. The straight line relation led to the conclusion that a relative humidity of 105 would be required to reduce transpiration to zero.

C. S. Scofield, "Chinese Wild Rice," with lantern (to be published later).

Dr. P. Spalding, "Present Status of the White Pine Blister Rust," with lantern (to be published as a bulletin of the Department of Agriculture).

R. Zon, "Meteorological Observations for Purposes of Botanical Geography, Agriculture and Forestry," with lantern.

The inadequacy of the present climatic data for the purposes of botanists lies not so much in the kind and character of observations that are being recorded as in the manner of their classification, their grouping and computing.

To properly understand plant life, it is essential to group meteorological data by actual periods of growth and rest. During each of these two periods plants react to temperature of the air in an altogether different way. The temperature records of the temperate region of the United States should be computed separately on the basis of the normal monthly mean not reduced to sea level for the period of rest or the period of growth, and in some localities also for a third period, the hot period. The period of rest should include all months having a normal mean temperature of 48° F. or less. The period of growth should be included, all months having a normal monthly temperature of from 50° to 72° F. The hot period in temperature latitudes should embrace months with a normal average temperature of more than 72° F.

A map showing localities with the same duration of the periods of growth and rest has been tentatively prepared.

Aside from monthly mean temperatures the average temperatures by periods of ten days (decades) are also desirable, and also the mean temperatures for periods when the ground is covered with snow and periods when the ground is bare. Similarly, the mean temperature for each period during which certain winds prevail.

Summation of temperatures, as suggested by Bussengo and de Candolle, do not indicate the actual requirements of plants for heat, since they overlook the existence of an optimum temperature for the development of each plant.

Groups of days with a given temperature are considered preferable, and the following classification is suggested:

1. *Freezing days*, with a daily average of 32° or less. These are further subdivided into: (a) Freezing days without thawing; (b) freezing days with thawing.

2. *Cold days*, with an average daily temperature ranging from 32° to 40° F. This group should be further divided into: (a) Days with frost; (b) days without frost.

3. *Cool days*, with an average daily temperature from 40.1 to 50° F. This group should be divided into: (a) Days with frost; (b) days without frost.

The paper discussed also the temperature of the soil, humidity of the air, precipitation, snow cover, soil moisture, sunshine and barometric pressure.

P. L. RICKER,

Corresponding Secretary

THE ST. LOUIS ACADEMY OF SCIENCE

"MOUNDS and Mound Builders" was the subject of a lecture by Dr. H. M. Whelpley, at the February 16 meeting. It was illustrated with lantern slides.

The lecture dealt particularly with the mounds of Illinois and Missouri. Strictly speaking, there was no race of mound builders, mounds having been built by primitive peoples, the world over. Indian mounds were discussed and their various types explained. The important Cahokia Group, in Madison Co., Ill., was considered in detail. The general arrangement and location of these mounds was clearly shown in a series of maps of the Long Lake, Bluff, Forest Park, St. Louis, Cahokia and other subgroups. It was shown that at the time these mounds were built, the Mississippi River probably was close to the Illinois bluffs, so that they were all originally on the west side of the stream, a fact which helps to explain their similarity. From their nature, it is evident that many years must have been required for construction and the archeological evidence points to their having been built by an agricultural people, quite different from the Cahokia Indians whom white men found here. Some views as to their possible use were considered. The plan of Monks', or better, Cahokia Mound was discussed and a number of early drawings and diagrams were thrown upon the screen. The known history of this mound was reviewed. Attention was called to the artistic possibilities of mounds and the agencies tending toward their destruction were emphasized. The speaker closed with a plea for the preservation of these wonderful relics of earlier ages.

G. O. JAMES,

Secretary